Review of: "Dynamic structure factors and equation of state of fluid iron under Earth’s core condition"

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Potential competing interests: No potential competing interests to declare.

This study provides valuable insights into the structural and thermodynamic properties of iron under Earth's core conditions. The findings contribute to our understanding of the geodynamo and the behavior of materials under extreme pressure and temperature conditions. The agreement between the calculated properties and experimental measurements demonstrates the reliability of the ab initio molecular dynamics approach for studying materials under extreme conditions.

Before the Editor makes a decision, I suggest that the authors must take into account the following corrections:

1. Abstract and introduction sections are long and should be rewritten
2. Need uniformity in the whole manuscript.
3. The equation numbers must be rearranged.
4. Punctuations are used randomly. Insert a comma or full stop after each equation accordingly.
5. Some editing "glitches" need to be corrected.
6. Some relations are not numbered, making it difficult to establish links between them.
7. The literature survey might be improved by adding some relevant references, such as:

-The Effects of Fractional Time Derivatives in Porothermoelastic Materials Using Finite Element Method. Mathematics 2021, 9, doi:10.3390/math9141606.

- Nonlinear analysis of dual-phase lag bio-heat model in living tissues induced by laser irradiation. Journal of Thermal Stresses 2020, 43, 503-511, doi:10.1080/01495739.2020.1722050.

- Generalized thermoelastic interaction in functional graded material with fractional order three-phase lag heat transfer. J. Cent. South Univ. 2015, 22, 1606-1613, doi:10.1007/s11771-015-2677-5.

- Finite element analyses of nonlinear DPL bioheat model in spherical tissues using experimental data. Mech. Based Des. Struct. Mach. 2020, 50, 1287-1297, doi:10.1080/15397734.2020.1749068.

- Hyperbolic Two-Temperature Photo-Thermal Interaction in a Semiconductor Medium with a Cylindrical Cavity. Silicon 2020, 13, 1871-1878, doi:10.1007/s12633-020-00570-7.